Claims

- [c1] What is claimed is:
 - 1. A flameless tracer utilizing an electronic light source, for use with a projectile, comprising: at least one G-hardened light source for emitting a light

at least one G-hardened light source for emitting a light visible to an observer during a flight of the projectile; and

a power source, connected to the light source, for selectively providing electrical power to the light source when the projectile is launched.

- [c2] 2. The flameless tracer of claim 1, wherein the visible light emitted by the light source comprises any one or more of:
 - a visible light spectrum; an infrared spectrum; and an ultraviolet spectrum.
- [c3] 3. The flameless tracer of claim 1, wherein the light source comprises at least one light-emitting diode.
- [c4] 4. The flameless tracer of claim 1, further comprising a driver circuit that is electrically connected to the power source and the light source, for providing a plurality of

pulses at different frequencies and intensities to the light source during the projectile flight.

- [05] 5. The flameless tracer of claim 1, wherein the power supply comprises a setback-activated battery.
- [c6] 6. The flameless tracer of claim 5, wherein the activation of the setback-activated battery occurs as a result of a high force applied to the setback-activated battery during the projectile launch.
- [c7] 7. The flameless tracer of claim 1, wherein the electronic light source comprises a plurality of miniaturized electronic light sources.
- [08] 8. The flameless tracer of claim 7, wherein the plurality of the miniaturized electronic light sources are suspended in a gelatin-like substance.
- [09] 9. The flameless tracer of claim 8, wherein the miniaturized electronic light sources are dispersed at a target upon impact, illuminating the target.
- [c10] 10. The flameless tracer of claim 1, wherein the electronic light source is encased in a substance to harden the electronic light source for use in a high-force environment.
- [C11] 11. The flameless tracer of claim 1, further comprising a

light-dispersing device that disperses the visible light created by the light source to enhance visibility of the projectile to the observer.

- [c12] 12. The flameless tracer of claim 11, wherein the light-dispersing device comprises a protective cap.
- [c13] 13. The flameless tracer of claim 11, wherein the light-dispersing device is made of any of a composite or plastic material.
- [c14] 14. The flameless tracer of claim 11, wherein the light-dispersing device is made of any of a transparent or a translucent material.
- [c15] 15. The flameless tracer of claim 11, wherein the light-dispersing device comprises any one or more of a reflector and a mirror.
- [c16] 16. The flameless tracer of claim 11, wherein the light-dispersing device is made of any of a composite material, a plastic material, a transparent, or a translucent material, and comprises any one or more of a reflector and a mirror.
- [c17] 17. The flameless tracer of claim 1, wherein the light source comprises a plurality of light sources, at least some of light sources emitting non-visible light that is

detectable by an instrument.

- [c18] 18. The flameless tracer of claim 1, wherein the light source comprises a plurality of light sources, at least some of light sources emitting visible light at different wavelengths.
- [c19] 19. The flameless tracer of claim 3, wherein the lightemitting diode comprises a laser diode.
- [c20] 20. The flameless tracer of claim 1, wherein the projectile comprises a rear end and a side.
- [c21] 21. The flameless tracer of claim 20, wherein the tracer is disposed on the rear end of the projectile.
- [c22] 22. The flameless tracer of claim 20, wherein the tracer is disposed on the side of the projectile.
- [c23] 23. The flameless tracer of claim 20, wherein the tracer is disposed on the rear end and the side of the projectile.
- [c24] 24. A marker for use with a projectile, comprising:a light-emitting device;an energy source attached to the light-emitting device;wherein upon any of a set back, a set forward, or a spin, the energy source is activated; and wherein the light-emitting device starts emitting a tracing light upon the projectile impacting a target.

- [c25] 25.The marker of claim 24, wherein upon the projectile impacting the target, the projectile shatters, allowing the light emitting device to be dispersed over the target.
- [c26] 26.The marker of claim 25, wherein the light-emitting device comprises any one or more of: an LED, a laser diode, a strobe, a miniature light source, a microminiaturized light source, a photoelectric diode, a microelectrical-mechanical device (MEM).
- [c27] 27. The marker of claim 25, wherein the light-emitting device is mixed with a sticky substance, wherein upon the projectile impacting the target, the sticky substance disperses over the target, causing the light-emitting device to adhere on the target.
- [c28] 28. The marker of claim 27, wherein the sticky substance is made, at least in part, of silicone.
- [c29] 29. The marker of claim 24, wherein the projectile is made at least in part, of a transparent material, allowing the light emitting device to trace a projectile flight path in addition to marking the target.
- [c30] 30.The marker of claim 24, wherein the projectile is made at least in part, of a translucent material, allowing

the light emitting device to trace a projectile flight path in addition to marking the target.

[c31] 31. The marker of claim 24, wherein the light-emitting device comprises any one or more of: a visible light spectrum; an infrared spectrum; and an ultraviolet spectrum.